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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,530	12/20/2001	Ryan T. Hirose	11403.00	5881

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EXAMINER

ENGLUND, TERRY LEE

ART UNIT	PAPER NUMBER
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2816

DATE MAILED: 02/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,530

Applicant(s)

HIROSE ET AL.

Examiner

Terry L Englund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 18 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5, 7-15, 17, and 19-21 is/are rejected.
- 7) ☒ Claim(s) 3,4,6 and 16 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

It is believed Fig 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. For example, it is described under the BACKGROUND OF THE INVENTION section. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities: Page 1, line 5 should be updated to indicate the co-pending application is 10/029,370, and it was issued as U.S. Patent 6,590,420 on Jul 8, 2003. An appropriate correction is required.

Claim Objections

The numbering of claims is not in accordance with 37 CFR 1.126 which requires the original numbering of the claims to be preserved throughout the prosecution. When claims are canceled, the remaining claims must not be renumbered. When new claims are presented, they must be numbered consecutively beginning with the number next following the highest numbered claims previously presented (whether entered or not). However, numbers 18 and 19 are missing from the originally numbered claims in this application.

Therefore, misnumbered claims 20-23 have been renumbered as claims 18-21, respectively.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 2, 12, 17, and 19-21 (originally numbered as 21-23) are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the applicant regards as the invention. It is not clear in claim 2 when the high voltage signal is clamped to ground. For example, is the high voltage signal kept at ground? It is not understood why claims 19-21 refer to "The method of claim 1", wherein claim 1 is an apparatus claim.

Each of claims 7, 8, and 13 recites the limitation "the high voltage supply" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim. For example, does this refer to the "high voltage signal" or to a voltage that can be on the "supply voltage line"?

Claim 19 recites the limitation "the clamping device" in lines 1-2. There is insufficient antecedent basis for this limitation in the claim.

Both of claims 20 and 21 recite the limitation "the supply line" in line 1 with insufficient antecedent basis for this limitation in the claim. Is this referring to the "supply voltage line" of apparatus claim 1, or was it meant to refer to the "supply line" of method claim 18?

Dependent claims carry over any rejection from any claim upon which they depend.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 5, 9, 11, 15, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Park et al. (Park). Fig. 7F shows circuit 400 for discharging a high voltage signal V_{pp} to supply voltage V_{cc} . The circuit comprises first switch 420 receiving high voltage signal V_{pp} ; second switch 430 having an input coupled to the output of first switch 420; and third switch 410 having an input coupled to the output of second switch 430, wherein the output of third switch 410 is coupled to supply voltage line V_{cc} . When the first-third switches are on, high voltage signal V_{pp} discharges to supply voltage line V_{cc} (e.g. see column 12, lines 38-44), thus anticipating claim 1. Fig. 7E shows an example of circuitry that provides the selective (on/off) control of third switch 410. Deeming the Fig. 7E circuit as one type of control logic, claim 5 is anticipated. Since first switch 420 and third switch 410 are n-channel and p-channel transistors, respectively, claims 9 and 11 are anticipated. Second switch 430 is an n-channel transistor, anticipating claim 15. Supply line V_{cc} is a positive supply reference, anticipating claim 21.

Claims 1, 5, 10, 11, 14, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Maloney. Fig. 4 shows a circuit 400 for discharging high voltage signal $Hi-V_{cc}$ to a supply voltage line (e.g. ground). The circuit comprises first-third switches 402-406 coupled in series between high voltage signal $Hi-V_{cc}$ and the supply voltage line. During an ESD event, the switches are turned on, and the high voltage signal is discharged to ground (e.g. see column 5, lines 34-35 and column 6, lines 19-23). Therefore, claim 1 is anticipated. Deeming the circuit providing the control signal to the third switch 406 as control logic, claim 5 is anticipated. Since the first-third switches are all p-channel transistors, claims 10, 11, and 14 are anticipated. Supply line $Hi-V_{cc}$ is a positive supply reference, anticipating claim 21.

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Claims 1, 5, 7, 8, 9, 11, 15, and 21 are rejected under 35 U.S.C. 102(b) as being anticipated by Vajdic. Fig. 2 shows a circuit for discharging high voltage signal VBB to supply voltage line Vcc. The circuit comprises first-third switches 40,41,45 coupled in series between high voltage signal VBB and supply voltage line Vcc. When these switches are on, they will allow the an excessive high voltage signal VBB to discharge to supply voltage line Vcc, thus anticipating claim 1. Although not shown, one of ordinary skill in the art would realize that the /ENBL signal is provided by some circuitry. Deeming that circuitry a control logic, it will selectively activate third switch 45, and claim 5 is anticipated. Column 3, lines 38-39 discloses that high voltage supply VBB is typically -3 to -4 volts, thus claim 7 is anticipated. At -3 volts, the high voltage signal VBB anticipates claim 8. First switch 40 is an n-channel transistor, and third switch 45 is a p-channel transistor. Therefore, claims 9 and 11 are anticipated. Also, claim 15 is anticipated because second switch 41 is an n-channel transistor. Since supply line Vcc is a positive supply reference, claim 21 is anticipated.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

In so far as being understood, claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over of the reference of Park et al. as applied to claim 1 above. As previously described, the Park reference shows/discloses a three-switch circuit for discharging a high voltage signal Vpp to supply line Vcc. However, the reference does not clearly show or disclose

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Vpp in the range of 5 to 10 volts. Since Park discloses the circuit is related to memory devices, and one of ordinary skill in the art understands the high voltage (boosted) signal Vpp may need to be high enough to ensure the proper erasing, and/or writing, functions can be performed within the memory devices, it would have been obvious to one of ordinary skill in the art to use Park's circuit with a high voltage signal Vpp that can range from 5 to 10 volts if that is the desired amount. Therefore, claim 13 is anticipated. Unless a proper amount of Vpp (e.g. 5 to 10 volts) is provided when necessary, the memory devices may not be fully erased, or the data being written into, and/or stored, in the device may not be accurate.

Allowable Subject Matter

Claim 18 is allowable. There is presently no strong motivation to provide a high voltage discharge path to a supply line, and a clamping device that activates when the high voltage signal approaches a voltage level of approximately the supply line.

Claims 3-4, 6, and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. There is no strong motivation to modify or combine any prior art reference(s) to ensure: 1) the fourth switch has its control coupled to the output of the first switch, and turns on when the high voltage signal approaches a ground level as recited within claim 2; 2) the circuit also comprises the fourth and fifth switches as recited within claim 4; 3) the circuit also comprises the fourth switch and control logic as recited within claim 6; and 4) the third switch is an n-channel transistor as recited within claim 16

Claims 12, 17, 19, and 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the

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limitations of the base claim and any intervening claims. Once the clamping to ground is clarified in claim 2, there is no strong motivation to combine or modify any prior art reference to ensure the fourth switch is either an n-channel, or a p-channel transistor as recited within claims 12 and 17. Also, if claims 19 and 20 are made dependent on allowed claim 18, their rejection under 35 U.S.C. 112 would be overcome, thus making them allowable also.

Prior Art

Although not used in any formal rejections described above, the other prior art reference cited on the accompanying PTO-892 is deemed relevant to at least the basic limitations recited in at least claim 1. Fig. 1 of Hara et al. shows a circuit for discharging high voltage signal V_{pp} to supply voltage line (ground), wherein the circuit comprises first (n-channel transistor) switch 13, second (p-channel transistor switch) 12, and third (p-channel transistor) switch 11 (or 15). Even if 11 is deemed the third switch, and 15 is deemed a fourth switch, the fourth switch does not clamp high voltage signal V_{pp} to ground. However, this reference should still be reviewed and considered with respect to the basic claim limitations.

Any inquiry concerning this communication from the examiner should be directed to Terry L. Englund whose telephone number is (571) 272-1743. The examiner can normally be reached Monday-Friday from 7 AM to 3 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tim Callahan, can be reached on (571) 272-1740.

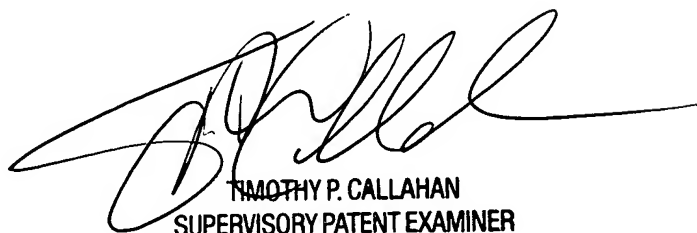
The new central official fax number is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1562.

TLE

Terry L. Englund

22 February 2004



TIMOTHY P. CALLAHAN
SUPERVISORY PATENT EXAMINER
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